

## NEW NEUROPTEROID INSECTS, NATIVE AND EXOTIC.

BY NATHAN BANKS.

The descriptions of the following new species have accumulated during the past year, based mostly on accessions to my collection, but the types of some (indicated in text) are in other collections. I have included a table to the genera of Myrmeleonidæ known from the Indo-Australian region.

## PERLIDÆ.

*Perlodes slossonæ* n. sp. Pl. XXVIII, fig. 17.

Marked much as in *P. signata*, the pale between ocelli runs back to pronotum; basal joint of antennæ dark; pronotum dark, a broad pale median stripe; thorax black; abdomen brown; setæ pale, tips of joints dark. Legs pale brownish. Wings faintly fumose, venation brownish. Ocelli as in *P. signata*; pronotum a little broader than long. Wings about as in *P. signata*, the apical cross-veins confined to subcosta, radius or its branches, the costal margin concave at humeral cross-vein. Female ventral plate with a median excision, and a curved tooth each side. Expanse 28 mm.

From Mt. Washington (Mrs. Slosson).

*Perlodes tibialis* n. sp. Pl. XXVIII, fig. 19.

Yellowish, head with faint dark mark back of each posterior ocellus, and dark on elypeus; pronotum dark on sides, and each side of the narrow pale median line, the disk each side mostly pale; thorax dark on sides, pale in middle; legs pale, the femora dark at tips, the base of tibiæ black, stopping suddenly and beyond very pale, but dark near tip; abdomen dull black, setæ pale. Wings with brownish venation. Posterior ocelli rather nearer to eyes than to each other; pronotum broader than long, much broader in front than behind. Wings long, the apical part with cross-veins all over from costa to hind margin; costal area with eight or more cross-veins. Expanse 37 mm.

From Olympia Mts., Wash. (Kincaid).

*Perla georgiana* n. sp. Pl. XXVIII, fig. 16.

Mostly pale yellowish throughout; bases of the hind femora infuscated; abdomen brown, discolored. Ocellar triangle broader

than long, posterior ocelli much nearer to each other than to the eyes, and the bosses are much nearer to posterior ocelli than to the eyes; the anterior bosses are elongate, oblique, and together form a V. Setae short, the joints for some distance out are broader than long. Pronotum much broader in front than behind, anterior corners sharp, posterior corners rounded, sides much rugose. In fore wings there are four cross-veins beyond the end of the subcosta; eight or nine costal cross-veins; radial sector with four branches; about seven median and five cubital cross-veins. Expanse 32 mm.

From Clayton, Ga., 2,000 to 3,000 feet, June (Davis).

*Perla xenocia* n. sp. Pl. XXVIII, figs. 5, 12.

Head yellow, a large dark brown spot over the ocelli, pointed behind, truncate in front; antennae and palpi black, pronotum dull black, anterior lobe of mesonotum, and two spots on the metanotum black; abdomen pale yellow; setae black; legs black, femora (except tips) pale yellow; sternum yellow. Wings dark brown, veins dark, except the yellow costa. Posterior ocelli fully three diameters apart, a little further from the anterior ocellus, and not one diameter from the lateral bosses, latter about their length from the eyes. Pronotum about one and one-fifth broader than long, barely narrowed behind, the corners nearly square, surface rugose. Wings rather long, about 17 costals, not far apart, three or four cross-veins beyond end of subcosta, three branches of the radial sector, and a minute apical fork, about 7 or 8 median and cubital cross-veins, in hind wings 8 or 9 cubital cross-veins, and the anal fork has three branches; in both wings the radial cross-vein is oblique. Last joint of the maxillary palpi about twice as long as the preceding joint; the third nearly twice as long as the fourth; last tarsal joint twice as long as others together. Expanse 42-45 mm.

From Singla, Darjiling, India, 1,500 feet, April (type in Indian Museum, cotype in author's collection).

*Neoperla phantoma* n. sp.

Body pale yellowish; margin of pronotum faintly brown, palpi dark brown or black, antennae slightly brown, basal part pale; black mark above on tip of femur, and on tip of last tarsal joint. Wings faintly brownish, veins (except costal) brown, hind wings all pale, except brown radial cross-vein. Ocelli not diameter apart, about twice as far from the eyes, ocelli very close to the bosses, latter scarcely their length from the eyes; third joint of maxillary palpi barely longer than the fourth; last tarsal joint hardly twice

as long as others together, tibia I almost as broad as the femur. Pronotum only slightly rugose, broader in front than behind, much wider than long. Fore wings with about 8 costals, and two or three beyond subcosta, two branches of radial sector, three median and three cubital cross-veins; in hind wings the anal fork has only one branch. Expanse 20 mm.

From Mallali, British Guiana, March (Parish).

*Neoperla plutonis* n. sp. Pl. XXVIII, fig. 10.

Large black species. Head yellow, a large, broad, blackish spot over ocelli extending to the anterior bosses, and reaching laterally toward eyes. Antennæ and palpi blackish; pronotum black on sides, pale in middle; thorax brown; abdomen pale on base, dark at tip, setæ yellow brown; legs brown, basal tarsal joints pale, blackish at tips of femora and on bases and tips of tibiæ. Wings blackish, veins (except costal) dark. Ocelli a little more than their diameter apart, not one-half their diameter from the bosses, which are larger, transverse, and not their length from the eyes; third joint of maxillary palpi much longer than the fourth; last tarsal joint fully three times as long as the others together, tibia I not one-half as wide as the femur. Pronotum much broader than long, sides rounded, surface rugose. Wings large, about 15 costal cross-veins, four beyond end of subcosta; three or four branches of radial sector; 10 median and 7 cubital cross-veins; in the hind wings the anal fork has four branches; anal plate of female broad, emarginate behind. Expanse 56 mm.

From La Trinidad, Turricares, and Orosi, Costa Rica (Garlepp).

*Neoperla nigriceps* n. sp.

Head and pronotum nearly shining black, sides of pronotum very narrowly pale, thorax and abdomen brown, antennæ and setæ pale yellowish, basal joint of the antennæ partly dark; wings brown, veins scarcely darker; legs pale, tibia and apex of femur II brown. Last joint of palpus long and slender. Head bent down, eyes very prominent, ocelli very small, about three diameters apart, twice as far from the eyes, lateral bosses no larger than ocelli, much lower down, and fully their length from the eyes and twice as far from ocelli. Pronotum fully one and a half times as broad as long, much broader in front, corners rounded, surface rugose; last joint of tarsi three times as long as others together. Wings slender, costals few and weak, radial sector forked once (nearer anastomosis than to tip), 7 median and 7 cubital cross-veins. Expanse 15 mm.

From Belgaum, India, 2,000 feet, April. Its small size and black head and pronotum distinguish it.

*Neoperla bolivari* n. sp. Pl. XXVIII, fig. 1.

Yellowish; margin of pronotum brown; abdomen brown on base; a brown spot each side on mesonotum; antennæ pale brownish; last joint of tarsus, tip of tibia, and mark at tip of femur above black or dark brown. Wings faintly brownish, veins pale, except radial cross-vein is black. Ocelli about one and a-half times their diameter apart, only half as far from the bosses, the latter about their length from the eyes; pronotum about one and a fourth times broader than long, hardly narrowed behind, anterior corners sharp, posterior ones rounded, surface rugose, three ridges near middle. Third joint of maxillary palpi much longer than the fourth; legs stout, femur I twice as broad as the tibia, last tarsal joint more than twice as long as others together. Female ventral plate very large, emarginate in the middle behind. Wings long; about 15 costal cross-veins, four cross-veins beyond end of subcosta; three branches to radial sector beyond anastomosis, 8 to 10 median cross-veins, 6 or 7 cubital cross-veins, in hind wings the anal fork has five branches. Expanse 54 mm.

From Monte Socorro, Colombia, 3,600 m. (Fassl).

*Isoperla texana* n. sp. Pl. XXVIII, fig. 3.

Yellowish; a faint dark V-mark connecting the ocelli; palpi yellowish brown, antennæ pale on basal fourth, dark beyond; pronotum brown on the sides; abdomen yellow above and below, setæ pale yellow, the tips dark; legs yellow, a black streak on outer side of femora and on basal outer part of tibiæ, and the tips of tarsi dark; wings brownish, veins dark brown, costal area yellowish. Posterior ocelli a little nearer to eyes than to each other, bosses about half way from ocelli to bases of antennæ; pronotum one and a half times as broad as long, hardly broader in front, sides straight, corners right-angled, sides coarsely rugulose; fore wings with two or three cross-veins beyond the end of the subcosta; radial sector forked twice beyond the anastomosis, about six median and five cubital cross-veins. Expanse 23 mm.

From Kerrville, 19 June; Dallas, 20 May; Victoria, 26 May; and Devils River, 3 May, all Texas. Type in U. S. Natl. Museum.

#### PSOCIDÆ.

*Psocus stigmosalis* n. sp. Pl. XXVIII, fig. 18.

In general similar to *P. semistriatus*, but the stigma is more slender and marked with black, mostly behind. Nasus lineated with black,



a black spot in front of the ocelli, and the vertex mostly dark in the middle; antennæ minutely hairy, the second joint about as long as the distance between the eyes. Thorax black, a yellow Y-mark in front; legs brownish yellow; wings hyaline, veins dark, vein closing the cell and base of radial fork whitish hyaline, a dark dot at base of the stigma, the stigma very long, much longer than the longest side of the cell, very low and evenly rounded behind, almost wholly blackish, dark dot at end of anal vein. The cell about once and a-half longer than broad at base, four-sided, tip about one-half of base. Length 4 mm.

From Cambridge, Mass., September, Franconia, N. H., Bear Mt., Salisbury, and East River, Conn. (Ely).

*Cæcilius posticus* n. sp. Pl. XXVIII, fig. 15.

Body dark, perhaps discolored; legs and antennæ pale yellowish. Wings hyaline; fore wings mostly dark on basal part, but some pale near base, and on costal area, and behind. A streak runs down the cubitus to the areola postica; the upper branch of the radial sector is also margined with dark brown, and the three marginal cells also dark brown, the brown extending into the areola postica. The upper branch of the radial sector runs more vertical than usual, ending just beyond the stigma; the latter long and slender, unmarked. Hind wings are hyaline. Length 2.7 mm.

From Sea Cliff, N. Y., in August.

*Cæcilius umbrosus* n. sp.

Yellowish; nasus and clypeus dark brown, a brown, median streak on face and vertex; the antennæ pale; legs pale; thoracic notum dark brown; abdomen mostly pale, dark at tip. Wings pale brown, rather darker near veins and toward tip, stigma also darker; venation brown, the vein at base of anal cell hyaline white. Second joint of antennæ not as long as vertex width in female, in male one and a fourth longer, third joint two-thirds as long as the second. Wings rather long, stigma large, about three times as long as wide, nearly angulate behind, the two parts of the pedicel of radial fork subequal in length, anal cell plainly longer than high. Length 3 mm.

From Hillside, Fulton Co., N. Y. (Alexander), and Sea Cliff, L. I., N. Y.

#### EPHEMERIDÆ.

*Anagenesia greeni* n. sp.

Grayish yellow; abdomen blackish above, thoracic notum dark; front legs mostly gray, others pale yellowish, setæ white, with

extremely long white hair. Wings gray, veins yellowish, the subcosta and radius dark. Vein 8 emits two branches from above near base, and then forks below, the branch running to middle of hind margin; between this fork and vein 8 are four longitudinal veins, the third a branch of the second, the fourth a branch of third (in this respect nearer typical *Palingenia*). Vein 9 connected several times to fork of 8; vein 9<sup>1</sup> unconnected. Vein 6 forked plainly before middle of wing, one long intercalary in this fork. Expanse 28 mm.

From Peradeniya, Ceylon, 17 March (Green).

*Hexagenia callineura* n. sp. Pl. XXVIII, fig. 13.

♀. Yellowish; a broad black band on face from eye to eye through ocelli, facial carina with a black spot; pronotum and thorax with a black stripe each side; a black stripe on each upper side of abdomen, on the tip of each segment the stripe is broader than on base. Leg I rather reddish, last tarsal joint blackish; other legs paler, tips of femora and tibiae dark. Wings hyaline; most of veins yellowish, subcosta and radius dark, cross-veins dark, some in base of fore wings narrowly bordered; in hind wings the veins pale, cross-veins dark, in discal part are about 16 or 18 cross-veins black, narrowly bordered with white or hyaline, and outside of this a blackish fusiform mark, giving these veins a strikingly beautiful appearance. Setae pale, some joints dark at tip. Expanse 44 mm.

From Cali, Colombia, 1,000 m. (Fassl.).

*Rhœnanthus posticus* n. sp.

♂. Yellowish, much marked with dark brown. A dark mark between eyes; pronotum broadly dark each side, thorax with a faint brown median streak, a dark brown line each side to base of fore wings, below this a large dark spot, a spot on pleura under fore wings. Abdomen yellow, base brown, each segment, beyond second, with a long dark U-mark each side, leaving a narrow median yellow stripe, last segment pale above; venter pale, each segment with a dark streak or spot; tip of forceps dark; setae pale, tips of joints dark; legs pale, claws dark; leg I more reddish, tip of tibia dark. Tibia I of male almost twice as long as femur, tarsal joints one and two subequal, third three-fourths of second, fourth about one-third of third. Wings hardly hyaline, veins brown, apical costal area red-brown, and the subcostal area to base also red-brown; the costals in basal part of wing are margined; beyond middle of wing are four dark spots, the outer three in a transverse row, the other, larger, is on the forking of vein 6. Hind wings with tip and veins

brown, and a brown spot near outer third on the first fork. Expanse 27 mm.

From Kandy, 4 November, Ceylon (Green).

*Leptophlebia assimilis* n. sp. Pl. XXVIII, fig. 8.

Very close to *L. præpedita*, but in male the basal joints of forceps seen from below are widely divergent, and this basal piece does not extend so far out below the next piece as in *L. præpedita* (in *L. præpedita* the basal pieces seen from beneath are close together). Marked much as *L. præpedita*, but no trace of color in the costal area of wings, middle segments of the abdomen bordered behind with dark, ventral segments with a blotch on each side. Leg I of male with about same proportions as in *L. præpedita*, but whole leg shorter; no costals in apical part of wing crossed. Expanse 14 mm.

From Black Mt., north fork Swannanoa River, N. C., May.

*Ephemerella vernalis* n. sp. Pl. XXVIII, fig. 11.

♂. Size and appearance of *E. excrucians*, but in leg I of ♂ the tarsi are fully one-fourth longer, the third joint being over three-fourths as long as second (in *E. excrucians* much shorter). Markings of body, legs and setæ as in *E. excrucians*, venter shows no marks, the last two segments being dark. Venation about the same, the costals in apical part are crossed. In the male forceps the next to last joint is plainly swollen. Expanse 22 mm.

From Black Mt., north fork Swannanoa River, N. C., May.

*Habrophlebia jocosa* n. sp. Pl. XXVIII, fig. 14.

♂. Head and thorax dark brown; abdomen dark on base and tip, segments 3 to 6 each with a very large median triangular pale mark occupying most of these segments, segment 7 with a pale basal band. Venter mostly pale, dark at base and tip; setæ white, legs whitish, femur I nearly black, tip of tibia I dark; in tarsus I the first joint is nearly one-half of the tibia, second joint almost as long as first, third fully one-half of second; mid and hind legs very slender. Wings hyaline, unmarked, veins pale, indistinct, five costals in the swollen apical part; hind wings about twice as long as broad, angulate on the middle of costa. Expanse 10 mm.

From Asheville and Black Mt., north fork of the Swannanoa River, N. C., in May. *H. americana* has hind femora banded twice, and dorsum of the abdomen darker.

*Callibætis semicostata* n. sp. Pl. XXVIII, fig. 7.

♂. Brownish; many parts, especially venter, finely dotted, some of the thoracic sutures are whitish; legs pale, darker on tips

of the tarsi, setæ white. Wings hyaline, veins pale, a light brown or reddish brown streak extending from middle of base one-half way out to tip, it is bounded in front by the subcosta and behind by the fourth vein, it contains two or three pale dots, sometimes a few dark marks in costal area. Two rows of cross-veins, the outer not much more than their length from the margin; marginal intercalaries in pairs. Hind wings fully twice as long as broad, angulate in front. Expanse 17 mm.

From Stony Mt., Manitoba, 16 September (Wallis).

*Callibætis pretiosa* n. sp.

Brown; thoracic notum with two narrow white stripes above; abdomen with darker spots on sides; legs pale, tips of tibiæ and tarsal joints dark; setæ white, the joinings dark. Wings hyaline, veins and cross-veins mostly white, except where there are dark marks; five or six faint irregular clouds along the hind border, a fairly broad, brown stripe from base to tip on costa, its hind border sinuate with four projections, four hyaline spots in the subcostal area before middle, about five pale spots on costal area before middle, and several more or less connected beyond. Outer row of cross-veins not twice their length from margin. Marginal intercalaries single, except toward tip of wing. Expanse 14 mm.

From Great Falls, Va., 11 September.

*Heptagenia coxalis* n. sp.

♂. Pale yellowish, carina of face dark each side above, antennæ pale, thoracic notum with indistinct median darker streak, base of abdomen dark above, beyond pale, segments not plainly marked, but last two are dark; legs pale, a black line, wider at each end, at base of the hind coxa, femora faintly dark at tips, and tip of tibia I dark; claspers pale; setæ pale, dark at tips of joints. Wings hyaline, veins brown, apical costal area brownish yellow, some of the costals faintly margined; 8 costals before bulla, 14 beyond, all simple. Tarsus I of male has first joint about one-third of second, the third equal second, fourth twice as long as first, fifth fully as long as first.

♀. Mostly yellow throughout, black line on hind coxa as in ♂; some costals margined. Expanse 21 mm.

From Clear Creek, Colo. (Oslar).

*Heptagenia subæqualis* n. sp.

♂. Head and thorax rather reddish yellow, a shining black ring at base of each ocellus, antennæ pale, thoracic notum rather dark behind, abdomen pale, segments dark on apical one-third or one-

half above, last three segments brownish, claspers pale, setæ faintly dark; legs pale, a black dot at tip of femur and tibia I; wings hyaline, veins and cross-veins mostly brown, apical costal portion brownish yellow, no costals nor radial cross-veins margined; hind wings not dark at tip, in fore wing about five costals before bulla, fourteen beyond, a few near the middle are crossed. In the tarsus I of male the first joint is fully two-thirds of second, the third equals second, the fourth scarcely longer than first, the fifth not one-third of first. Expanse 17 mm.

From Black Mt., north fork Swannanoa River, N. C., May.

*Heptagenia carolina* n. sp.

♂. Head and thorax pale yellowish or reddish yellow, no distinct marks on either head or thorax, basal joints of antennæ pale, rest black. Abdomen pale, more grayish, each segment with a narrow apical dark ring of even width all around, penultimate segment rather darker, claspers brown, setæ brownish. Legs pale, femora I and II with median and apical dark bands, hind femur dark near tip, tibia and the tarsal joints narrowly dark at tips. Wings hyaline, rather brownish yellow in apical costal part and extending around to the tip, venation brown; the costals, or most of them, with a dark spot at costal end, the first three or four radial cross-veins narrowly margined, then one or two broadly margined with dark; tip of hind wings slightly fumose. In fore wing only about six costals before bulla, about ten beyond. Tarsus I of male has the first joint a little more than one-half of second, third equal second, fourth longer than first, fifth not one-half of first. Expanse 24 mm.

♀. Yellow or reddish yellow throughout, the abdominal segments narrowly dark at tips above, setæ faintly dark, darker at tips of the joints, femora faintly dark in middle and tip, apical part of tarsi dark. Wings as in the male, two or three radial cross-veins broadly margined. Expanse 30 mm.

From Black Mt., north fork Swannanoa River, N. C., in May.

ASCALAPHIDÆ.

*Phalascusa cruciger* n. sp.

Yellowish; tips of lateral fringe of face gray; vertex with gray and black hair; antennæ black; thorax yellow above; a brown mark near base of fore wings, a brown median line on anterior lobe and behind this is a brown cross; metascutellum with median brown mark. Abdomen of female short, swollen in middle, white-haired at base, above with two rows of yellow spots, separated by black

line as in *P. hildebrandti*; pleuræ pale, with a brown stripe which is furcate in front; legs pale yellow, tarsi faintly brown. Wings hyaline, much more slender than in *P. hildebrandti*, each wing with two brown spots, one at base, another larger over origin of radial sector and obliquely back to margin, some cross-veins between spots are margined, and some costals also with yellowish brown. Expanse 58 mm.

From River Errer, Abyssinia, Africa (Kristensen).

*Suhpalasca orsedice* n. sp.

Blackish; face below yellowish, gray hair below antennæ, above darker or even black, club of antennæ wholly dark, antennæ reaching about four cells from stigma; thorax hardly paler in the middle; abdomen of female dark, in male rather yellowish above, black streak on sides, venter pale; legs black, femora yellowish, at least near base. Wings hyaline, venation dark, stigma nearly black, in fore wing scarcely longer above than high, with four veinlets, in hind wings a little longer, with five veinlets, two rows of cells beyond stigma. In fore wing the radial sector arises much beyond the cubital fork, four cross-veins before it, in hind wing only two cross-veins before radial sector, in both wings five branches to the radial sector. Expanse 58 mm.

From Singla, Dargiling, India (Type in Indian Museum; cotype in author's collection).

MYRMELEONIDÆ.

*Dendroleon javanus* n. sp.

Head pale, a large black band between eyes extending above and below the antennæ, vertex darker, darker across posterior part; palpi wholly pale; pronotum dark in middle, and irregularly on the sides, thoracic notum dark, with a few pale spots on sides; abdomen dark, paler on base; legs pale, tips of femora and tibia dark, tibiæ I and II with broad dark band before middle, femur I with a dark streak above, coxæ I with dark spot in front. Wings hyaline, veins pale and dark, subcosta with dark dots, the radius and cubitus with long dark streaks, many cross-veins entirely dark, an oblique line up from end of anal vein in fore wings, a recurved line (extending toward the first one) from middle of hind margin, another dark line or streak on cross-veins up from union of median and cubitus, a short dark streak and spot just before the tip of wing, and outer margin with many dark patches; in hind wings the apical and outer marginal marks are present as in the fore wings. Pronotum longer



than broad, narrowed in front; legs very long and slender, the tarsi very long, the basal joint as long as the apical, and each as long as other three together, spurs long and slender, nearly straight, except at tip, covering two joints; tibia as long as femur. Wings rather broad at stigma, the hind pair plainly longer than front pair, and narrower; a few costals forked before stigma, in fore wings three cross-veins before radial sector, one in hind wings, in both the anal stops soon after cubital fork, ten branches of radial sector, about 25 radial cross-veins before the black-margined one. Expanse, fore wings, 75 mm.

From Java (Berlin Museum).

*Acanthaclisis hesperus* n. sp.

Similar to *A. fallax* Rbr. The pronotum shows a dark median stripe, forked in front, lateral margins black, and between is a dark stripe reaching to the transverse groove. Abdomen above distinctly striped with pale; male appendages yellowish; venter black. Wings with many small spots by veins, dark spots between subcosta and radius, but not between median and cubitus; hind wings without marks; forks of axillary vein of fore wings connected by several cross-veins. Larger than any *A. fallax* I have seen. From Eureka, Utah, 15 July, and Jemez Mts., N. Mex., 28 July and 4 August (Spaldings, Woodgate). Separated from *A. fallax* by black venter. *A. texana* Hagen, I take to be *A. fallax*. I have this latter species from Phoenix, Ariz., as well as Mexico. From *A. americana* these forms may be separated thus:

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|--|--------------------|
| 1. Forks of axillary vein in fore wings not connected by cross-veins; a spot in apical part of hind wings; dark between median and cubital vein of fore wings; male genitalia black; venter black, the abdomen not striped above ..... | <i>americana</i> . |
| Forks of axillary vein of fore wings connected by one to three cross-veins; no spot in hind wings; abdomen more or less plainly striped with pale above; male appendages mostly yellowish .....  | 2.                 |
| 2. Venter yellowish .....  | <i>fallax</i> .    |
| Venter black .....   | <i>hesperus</i> .  |

*Myrmeleon agriope* n. sp.

Very similar to *M. crudelis* Walk., but the vertex shows a transverse row of four large pale spots, the submedian pair being longitudinal, the lateral ones transverse and extending to the eyes; behind on the vertex are pale spaces in middle and on the sides. The pronotum shows pale mark in middle of anterior part, the sides

largely pale, with a narrow dark stripe reaching as far as the transverse furrow. The wings are similar to that species, with dotted veins, and longer dark spaces on subcosta, radius and cubitus. In fore wings are about seven cross-veins before radial sector, in the hind wings about four such cross-veins, in both pairs eight branches to the radial sector. Expanse 53 to 55 mm.

From Claremont, Calif., and Nogales and Phœnix, Ariz.

**Myrmeleon heriacles** n. sp.

Face shining black, in front with two submedian projections, mouth and cheeks pale, tips of palpi dark; vertex black, with transverse row of more or less shining rufous spots; antennæ black, basal joints pale; pronotum dull black, but lateral half of anterior part pale, and the margin of posterior part also pale; thorax dull black, with pale yellow stripe through the bases of the wings, continuous with the pale margin of pronotum; abdomen dull black; legs pale, broad dark bands on middle of the femora, narrow bands near base and at tip of tibiæ I and II, most of tarsi black, hind tibia with black stripe within; wings hyaline, veins dotted with dark, the subcosta, radius, and cubitus with longer dark spaces, stigma dark. In fore wings about nine cross-veins before radial sector, in hind wings six or eight such cross-veins, ten branches to radial sector in each wing, in fore wings three cross-veins between anal and cubital fork, in both pairs the tips are acute. Expanse 70 to 73 mm.

From Southern Pines, N. C., in May; also occurs in Florida. I had considered this as probably the *M. tectus* of Walker, but a view of the type shows that it is a different species.

**Macronemurus darwini** n. sp.

Face pale yellowish, with a median vertical dark mark, a dark spot below each antenna, vertex mostly dark, but usually pale each side near eye; antennæ pale, darker at tip; palpi pale; pronotum pale, with a pair of submedian brown marks, sometimes faint; thorax yellowish brown, indistinctly marked, but usually with a pale median line; abdomen dark, often pale at base and some segments pale at base above, legs pale, unmarked, spines black, spurs equal two tarsal joints on front legs. Wings with the longitudinal veins spotted with dark, and most of the cross-veins dark at one or both ends; in both wings is a long dark brown streak from near end of median and cubitus out toward tip, and usually a series of spots beyond the stigma to near the tip. In fore wings six cross-veins before the radial sector, eight or nine branches to the radial sector

in each wing; in fore wings the anal is connected three or four times to cubital fork. Expanse 40-46 mm.

From Port Darwin, N. Australia.

*Acratoleon* n. gen.

Similar to *Paraglenurus*, but claws not as long and more curved; spurs about as long as four tarsal joints. Legs slender, the tibia about as long as the femur. Antennæ long, hardly diameter apart at base; palpi very short. Wings moderately broad at stigma, outer margin not sinuate, hind wings a little longer than front pair, one cross-vein in hind wings before the radial sector, about seven such cross-veins in the fore wings; the radial sector arises much before the cubital fork.

*Acratoleon flavum* n. sp. Pl. XXVIII, fig. 6.

Pale yellowish; a dark mark each side under antennæ, a dark spot each side on vertex; palpi all pale; antennæ pale yellow, tip dark; pronotum pale, a dark interrupted stripe near each margin, broader behind; thorax pale, dark streak over bases of wings, pleuræ with large dark spot under fore wings, a smaller spot under hind wings. Abdomen pale, tips of segments dark. Wings hyaline; veins pale yellow, those behind radius marked with dark at ends of the cross-veins, cross-veins nearly all dark and mostly margined with dark, a dark mark above in front of stigma, outer margin to the outer forkings mostly faintly dark, and dark cloud over end of anal; in hind wing venation similar to fore wing, and with two dark streaks near tip of wing, one on the anterior margin. Legs pale yellow, with black bristles, spurs and claws pale. Pronotum one and one-half times as long as broad, a little narrowed in front; legs slender, spurs very long and nearly straight, almost reaching to last joint, basal joint much shorter than the fifth; hind wings longer than fore wings and a little more narrow; fore wings broad at stigma and rather short beyond, costals mostly simple, seven cross-veins before radial sector, about eight branches of radial sector, 28 radial cross-veins, anal connected four times to cubital fork in fore wings, only twice in hind wings. Expanse, fore wings, 65 mm.

From Salamo Archipel., Shortlands Island (C. Ribbe). Type in Berlin Museum.

This new genus is placed in the following table of the genera of the Indo-Australasian region. In this table a hitherto unused character, the condition of the anal veins in the fore wings, is considered of prime importance. (Pl. XXVIII, figs. 20, 21, 22, 23, 24.)

1. Four separate anal veins in the fore wing; in hind wings the anal is not connected directly to the hind margin, but to the second anal by a series of cross-veins.....(PALPARINI) 2.  
Two or three anal veins in fore wing; in hind wings the anal is connected by cross-veins directly to the margin.....4.
2. Two or more series of costal cells near to base of wing ..... STENARES.  
But one series of costal cells until near the stigma.....3.
3. Antennæ not their diameter apart at base; the basal joint with long bristles ..... PALPARES.  
Antennæ more than their diameter apart at base..... TOMATARES.
4. In the fore wings the second and third anal veins are separate, but connected by a short cross-vein; a line in apex of the fore wings.....(DENDROLEONINI) 5.  
In the fore wings the second and third anal veins are united for at least one point.....11.
5. In the hind wings the anal vein runs parallel to the cubitus for a long distance, finally curving to the margin beyond the middle of wing.....ECHTHOMYRMEX.  
In hind wings the anal runs to margin in a normal manner.....6.
6. Legs very slender, spurs very long and nearly straight, the first tarsal joint about as long as the last.....DENDROLEON.  
Spurs and legs shorter; first tarsal joint much shorter than the last.....7.
7. Outer margin of wings barely sinuate.....9.  
Outer margin of wings sinuate or excised.....8.
8. Many radial cross-veins are crossed; the venation very dense; outer margin of wings sinuate..... EPISALUS.  
Radial cross-veins not crossed; outer margin of wings excised, PERICLYSTUS.
9. Many of the costals crossed; abdomen about as long as wings; cubito-anal cross-veins longer than anal cross-veins, EPICANTHACLISIS.  
Few of costals crossed; abdomen much shorter than wings.....10.
10. Cubito-anal cross-veins shorter than anal cross-veins; venation irregular.....LAYAHIMA.  
Cubito-anal cross-veins longer than anal cross-veins; venation fairly regular.....GLENOLEON.
11. One cross-vein before radial sector in the hind wings, (MACRONEMURINI) 12.  
Three or more cross-veins before the radial sector in the hind wings; antennæ wide apart at base.....(MYRMELEONINI) 20.
12. No spurs to tibiæ.....13.  
Spurs distinct.....14.
13. Many costals forked; two series of anal cells for part of the way.....CHRYSOLEON.  
Costals simple; one series of anal cells; wings rather narrow, COMPSOLEON.

14. In fore wings the anal vein runs parallel to the cubitus for a long distance.....15.  
 In fore wings the anal vein does not parallel the cubitus; a divergent cubital fork present.....16.
15. First tarsal joint much shorter than the fifth.....CREAGRIS.  
 First tarsal joint about as long as the fifth.....PROTOPLECTRON.
16. Legs rather short and stout.....17.  
 Legs very slender, tibia about as long as the femur; no line in apex of fore wings.....18.
17. Spurs about as long as first two joints of tarsus together,  
 MACRONEMURUS.  
 Spurs as long as three or four tarsal joints together.....DISTOLEON.
18. Radial sector arises much before the cubital fork; spurs as long as three or four tarsal joints.....ACRATOLEON.  
 Radial sector arises much beyond the cubital fork; spurs hardly more than two tarsal joints.....19.
19. Claws very long, little curved, half as long as last tarsal joint; pronotum rather short.....PARAGLENURUS.  
 Claws not one-half as long as last tarsal joint; pronotum long and slender.....INDOLEON.
20. Legs short and stout; spurs much longer than basal joint of tarsus, which is short.....21.  
 Legs more slender; spurs but little longer than basal joint of tarsus.....24.
21. Larger species; legs very stout and hairy; spurs much curved or even bent.....22.  
 Smaller species; legs not very stout; spurs but little curved; costal area with but one series of cells.....MYRMECÆLURUS.
22. Hind wings with a double series of costal cells; antennæ very long; veinlets before origin of radial sector in fore wing are crossed.....STIPHURONEURA.  
 Hind wings with but one series of costal cells.....23.
23. Second and third anal veins in fore wing form a closed cell,  
 ONCLUS.  
 Second and third anal do not form a closed cell.....ACANTHACLISIS.
24. Branches of radial sector are bent to form a line or groove in apical part of the wing.....NESOLEON.  
 No such line of bent veins in apical part of wing.....25.
25. Fore wings with a double series of costal cells in middle of length; a single series at each end.....WEELIUS.  
 A double series of costal cells only near the stigma.....26.
26. A series of connecting veinlets just before the stigma; wings very broad at stigma.....HAGENOMYIA.  
 No such series, perhaps one or two veinlets connected to others, several may be forked.....27.
27. Some cross-veins before radial sector crossed; wings broad at stigma.....CALLISTOLEON.  
 No cross-veins before radial sector crossed; wings narrow throughout.....MYRMELEON.



## CHRYSOPIDÆ.

*Allochrysa boliviana* n. sp.

Yellowish green; palpi unmarked; basal joint of antennæ with a red stripe on outer side; pronotum unmarked, longer than broad, narrowed in front; thorax and legs pale; abdomen marked with reddish on the middle of some segments towards tip. Wings hyaline, venation green; stigma not distinct in fore wings; in hind wings is a dark spot; no dark spots on union of cubitus and median near margin of wing; in fore wings the outer gradates are brown, outer ends of costals, middle of first few radials, origin of radial sector, and one or more cross-veins behind it dark. Wings rather long, fore ones not acute, hind ones plainly acute, in fore wings 9 outer and 14 or 15 inner gradates, reaching far up toward the base (as in *A. colombia*); in hind wings 7 outer and 11 inner gradates. Expanse 38 mm.

From Rio Longo, Bolivia, 750 m. (Fassl).

*Allochrysa nigrilabris* n. sp.

Yellowish green; labrum jet black, a black V-mark between and above the bases of the antennæ, basal joint of antennæ with a red spot outside; pronotum pale, hardly longer than broad; thorax above with large black spots as in *A. colombia* and *A. varia* and black spots above on some segments of the abdomen toward the tip; legs pale. Wings hyaline, venation green, gradates dark, a dark spot in stigma, and in fore wings one on the union of median and cubitus near margin, many radials at each end, the origin of radial sector, several anals, the lower part of end of second cubital cell, and the upper part of end of third cubital cell dark. In fore wings 7 outer and 10 inner gradates; in hind wings 7 outer and 8 inner gradates. Expanse 38 mm.

From St. Antonio, Colombia, 1,800 m., December (Fassl).

*Allochrysa riveti* Navas.

Described from Ecuador, occurs in Colombia and Panama.

*Allochrysa titan* n. sp.

Body large and heavy. Pale yellowish or greenish, palpi mostly black, a faint red spot each side at base of clypeus, vertex with a red triangle, red stripe on outer side of basal joint of antennæ, joints beyond for about one-third way out blackish on outer side. Pronotum with two red marks each side, almost making a stripe, rest of thorax, abdomen, legs, and wings unmarked, latter with some black veinlets, some of the radial cross-vein partly black, and some



of the gradates near end of the series black; stigma indistinct. Antennæ but little longer than wings, pronotum much broader than long, but little narrowed in front; abdomen short, the tip of the last ventral segment roundedly produced in the middle. Wings long, barely acute, costal area not very wide; about 18 radial cross-veins before stigma; radial sector arises nearer base than usual, the second cubital cell is fully as high, as long on upper side, the third oblique, and very obliquely divided, about 13 gradates in each series, wide apart, the inner series curving up and getting near the radial sector, in the fore wings between the two series are two or three gradates of an intermediate series; many of the outer forks fully four or five times as long as wide. Expanse 65 mm.

From Limon, Costa Rica, 24 May, Schaus. The largest species of the genus. Type in U. S. National Museum.

***Allochrysa torquatus* Navas.**

Similar to *A. nigriceps*, but larger, and the pronotum pale, and longer, and narrowed in front. Head, basal joints of antennæ, and thoracic notum black. Wings marked as in *A. nigriceps*, but the stigmal spot does not extend so far inward, and that at the end of the cubitus is larger and does not extend out along the gradates; in hind wings there is no spot at end of the cubitus. Expanse 45 mm.

From Alajuela, 9 April, Trinidad River, 2 May, Panama (Busek). In U. S. National Museum. Navas has lately described this species from Guatemala under the name "*Gonzaga torquatus*." There is not the slightest need of a generic name for this section of the genus *Allochrysa*, which also includes *A. nigriceps* and *A. palliceps*.

***Leucochrysa cinctipes* n. sp.**

Rather grayish yellow; last joint of palpi black, faint marks on face, faint line on the outer side of basal joint of antennæ; legs with faint dark bands on tips of femora, near base and tip of tibia, and the extreme tip of tarsi black. Wings hyaline, with gradates gray, many cross-veins brown at ends; stigma whitish, with dark spot at each end, in hind wings there is a faint cloud over the end of cubitus, near the margin, ends of veins on all of margin brown; fore wings with gradates 6-7; in fore wings the radial sector has no connecting cross-vein near its base to the third cubital cell, but there is a cross-vein before the radial sector to the third cubital cell. Expanse 30 mm.

From Corazal, Canal Zone, Panama, 11 June (Busek), Type in

U. S. National Museum. A very remarkable species on account of venation, and will go in the genus *Berchmansus* of Navas.

*Leucochrysa apicalis* n. sp.

Pale yellowish, a brown dot under each eye; palpi with dark on penultimate joint; antennæ very long, pale, basal joint with a large brown spot above at tip; pronotum much narrower in front, with a dark reddish side line; mesonotum with a dusky spot each side above the fore wings; abdomen and legs pale. Wings with green venation; stigma with dark spot in hind wings, in fore wings indistinct; in hind wings the radial sector is dark for a short distance before stigma, not in the fore wings. In fore wings the gradates, most of the cross-veins in part, origin of the radial sector, divisory veinlet in part, and vein at base of the third cubital cell dark. In hind wings the gradates and some radial cross-veins near stigma dark. Gradates 6 and 7 in fore wing, 4 and 5 in hind wing; the inner series as near to radial sector as to outer series. The third cubital cell very much longer than the second; marginal forks two and a half to three times longer than broad. Expanse 28 mm.

From Rio Pacaya, Peru, August.

*Leucochrysa marginalis* n. sp.

Similar to *L. azevedoi* Navas, but the gradates all pale, no dark marginal forks, the hind margin of hind wing is dark for most of length, the radial sectors are black for a short distance in both wings and the veinlets above the black portion are also black, the stigma with black basal spot, outer ends of costals, some radial cross-veins, and others in basal part of wing are black, also the origin of the radial sector. Head with a red band under antennæ, red stripe on basal joint, and red spot each side on the vertex, basal part of antennæ with black line on lower side, pronotum with red band near base, and spots each side, two red spots on front of mesothorax, and two on the scutellum, metathorax marked in the same way, abdomen with red spots on most of the segments above. Venation about as in *L. azevedoi*, 13-14 gradates, the inner series as near to radial sector as to outer series, and extending basally, the median vein running into the outer series; in hind wings 10-10 gradates. Expanse 50 mm.

From Rio Longo, Bolivia (Fassl). Several of the species placed by Navas in his table of South American *Leucochrysa* belong to *Allochrysa*; such are *nigriceps*, *palliceus*, and *internata*. *Allochrysa vigoi* appears to be the same as *A. palliceus*.

***Leucochrysa submacula* n. sp.**

Pale yellowish, face with a dark or reddish spot each side under antennæ and close to the eyes, second and third joints of the maxillary palpi with black spots, antennæ pale, basal joint with a dark streak on the outer side, vertex rather reddish in front part of the elevation; pronotum narrowed in front, and with a reddish spot near each anterior corner, thorax with a dark spot over base of the wings; abdomen pale, with dark spot near base and another beyond the middle. Wings hyaline, stigma short, black, many cross-veins black at ends, gradates (5-6 fore wings, 4-4 hind wings) black, eight radial cross-veins before stigma, inner gradates nearer to radial sector than to outer series. Expanse 27 mm.

From Bartica, British Guiana (Parish).

***Leucochrysa callota* n. sp.**

Pale yellowish; a dark spot each side at base of the clypeus near the eyes, two dark dots on front of vertex above the antennæ, basal joint of antennæ with dark dot near tip; pronotum with a red-brown spot each side near middle of the side margin; thorax with a large spot each side above base of wings, second segment of abdomen and some other segments marked with dark. Wings hyaline; veins pale, many cross-veins dark at ends, gradates dark, stigma dark in both wings. Pronotum hardly longer than broad, narrowed in front, 14 radial cross-veins, 7 inner, 8 outer gradates in fore wings, outer series as near inner as to margin, outer forks fully four times as long as broad; hind wings with six gradates in each series. Expanse 33 mm.

From Austin, Texas (McClendon).

***Chrysopa chacranella* n. sp.**

Similar to *C. nosina* Navas. Black mark on cheek, reddish divergent mark on vertex, and sides of thorax with two blackish stripes, but here they are practically connected and not widely separated as in *C. nosina*. The antennæ are wholly pale, no mark on basal joint, there are no spots on the face under antennæ, and the venation is not black at juncture of veins, the entire venation being pale. Gradates 6-6 in both wings, the outer series as near to margin as to inner series. Expanse 26 mm.

From Chacra di Coria, Argentine, 26 February (Jensen-Haarup).

***Chrysopa figuralis* n. sp.**

Green; face with a rather broad red streak across it, palpi and antennæ pale, basal joint of latter more yellowish, vertex with two

broad red stripes near middle, narrowed in front and united just above antennæ, a red line each side near eyes; pronotum a little broader than long, with a very broad reddish stripe, containing a darker red median line, the red extending back on the anterior lobe of mesothorax. Venation green, costals, gradates, radials, and divisory all black, other veins and branches dark in part; in hind wing the gradates and costals, and endings of veins on radial sector black; 18 costals, 3-6 gradates in each wing, inner series much nearer outer than to radial sector; marginal forks hardly twice as long as broad; divisory ends beyond the cross-vein, the third cubital cell barely broader at tip. Expanse 29 mm.

From Chosica, Peru, 2,800 feet, 10 June (Parish).

*Chrysopa incalis* n. sp.

Deep green; palpi and antennæ pale, unmarked, no marks on head or rest of body except that the pronotum has a faint yellowish stripe on each side a little distance from margin. Pronotum about as broad as long. Venation green, gradates, costals, except at costal end, radials on middle and a few other veins near base in part black; in hind wings some costals and the gradates scarcely dark. Wings rather broad, hind pair acute at tips, 21 costals, 5-7 gradates in fore wing, 3-7 in hind wing, the series parallel, inner series twice as near outer as to the radial sector, divisory ends beyond cross-vein, marginal forks about three times as long as broad. Expanse 30 mm.

From Matucana, Peru, 7,780 feet, 14 June, and Chosica, Peru, 2,800 feet, 10 June, both from Mr. Parish.

*Chrysopa asoralis* n. sp.

Green, a pale yellow median stripe on thorax and abdomen, face with red stripe each side on cheeks, sometimes a red dot on vertex each side near eyes, otherwise unmarked, palpi and antennæ pale. Pronotum much broader than long. Wings with green venation, gradates and origin of radial sector dark, costals, radials and a few other veins dark at ends; in hind wings gradates, ends of costals, and some radials dark; 22 costals, 6-8 gradates in fore wing 5-7 in hind wing, the series parallel, inner one-half way from radial sector to outer series, many marginals two or more times longer than broad, the divisory ends at or just before the cross-vein. Expanse 28 mm.

From Chosica, Peru, 2,800 feet, 7 June, Matucana, Peru, 7,780 feet, 14 June, and La Cumbre, Colombia, 6,600 feet, May, all taken by Mr. Parish.

It is related to *Ch. lava* Navas, which I have from Monte del Eden, Ibaque, Colombia, 9,000 feet (Fassl), but the inner gradates do not extend basally.

*Chrysopa hesperina* n. sp.

Pale greenish; thorax with a pale median stripe; head with red stripe on cheeks, an oblique spot under each antenna, and vertex with a line each side near eyes, red; last joint of palpi black; antennæ pale, unmarked, rest of body also unmarked. Pronotum about as broad as long. Wings scarcely acute at tips, with green venation; costals, radials, cubital and median cross-veins wholly dark, as also the gradates, branches of radial sector, and forkings of marginals dark in part, origin of radial sector, and tip of divisory vein dark; 14 costals, third cubital cell not very long, divisory ends beyond cross-vein, gradates 5-6, inner series scarcely nearer to outer than to radial sector, marginal forks not twice as long as broad. In hind wings costals and gradates black, and also the ends of veins ending in middle portion of radial sector black; gradates 4-6. Expanse 22 mm.

From Caldras, Colombia, May, 4,400 feet (Parish), and Cali, Colombia, May, 500 feet (Parish).

*Chrysopa breviata* n. sp.

Pale greenish or yellowish, head unmarked, palpi marked with black, antennæ pale, more yellowish on base; pronotum about twice as broad as long, a large red spot on each anterior side; rest of body and the legs pale, unmarked. Wings with green venation, costals, radials, gradates, some other cross-veins, bases of radial branches, origin of radial sector, part of divisorius, and marginal forks black. In hind wings a few costals and the gradates black. Wings short, almost rounded at tip, about 16 costals, third cubital cell one-half as wide at base as at tip, divisory ending a little beyond cross-vein; in fore wing 3 to 5 outer, and 2 or 3 inner gradates; in hind wing 4 to 6 outer, and 1 or 2 inner gradates; the inner nearly twice as close to outer as to the radial sector; marginal forks not twice as long as broad. Expanse 18 to 20 mm.

From Guayaquil (Parish) and Quevedo, Ecuador.

*Chrysopa azygota* n. sp.

Pale yellowish or greenish, a blackish stripe on each cheek, a dot on middle of face, and second and third joints of antennæ blackish, a dark stripe on outer side of basal joint, and tips of palpi dark; rest of body and legs pale, unmarked. Wings with pale venation,

much marked by brown, at ends of costals, radials, and other cross-veins, origin and branches of radial sector in part dark; gradates, lower base of third cubital and several basal cross-veins wholly dark; hind wings with gradates wholly and some costal and radial cross-veins partly dark, stigma not distinct. Wings narrow, acute at tips, gradates subparallel, nearer to each other than to outer margin or radial sector; 5 to 7 in fore wing, 2 to 4 in hind wings, each much farther than its length from the next; 15 costals in fore wing; divisory ends beyond cross-vein, third cubital cell twice as wide at tip as at base, the marginal forks little more than twice as long as wide. Pronotum plainly broader than long. Expanse 21 mm.

From Mt. Makiling, Philippines (Baker).

*Chrysopa ilota* n. sp.

Pale yellowish or greenish; a dark stripe on each cheek; palpi lightly marked with dark, no other marks except sides of pronotum rather darker; pronotum a little longer than broad and narrowed in front. Wings moderately broad, acute at tips; venation pale, gradates and some basal cross-veins wholly dark, costals dark at lower end, radials at upper end, a few other cross-veins partly dark; in hind wings gradates, costals, and radials marked with dark. Gradates subparallel, inner series as near radial sector as to outer series, latter nearer to margin than to inner series, 5 to 7 gradates in fore wing, 3 to 5 in hind wings, each more than their length apart, 20 costals in the fore wings before the stigma, latter long, faintly dark; marginal forks scarcely twice as long as broad; divisory ends much before cross-vein, third cubital about one-half as wide at base as at tip. Expanse 25 mm.

From Mt. Makiling, Philippines (Baker).

*Chrysopa morota* n. sp.

Pale yellowish or greenish, unmarked; palpi and antennæ unmarked, margins of pronotum more greenish; wings long, acute at tips, venation green throughout, unmarked, the stigma long, brownish; gradates subparallel, but inner series is nearer to the radial sector than to outer, and latter nearer to margin than to inner series; 6 to 7 gradates in fore wings; 4 to 7 in the hind wings, each hardly a length apart; 17 costals before stigma in fore wing; the divisory ends just before the cross-vein, the third cubital cell at base not one-half as wide as at tip; marginal forks little more than twice as long as broad; pronotum a little broader than long, much narrowed in front. Expanse 23 mm.



From Mt. Makiling, Philippines (Baker).

The species of *Chrysopa* now known from the Philippine Islands can be tabulated as below:

PHILIPPINE CHRYSOPÆ.

- |   |                      |
|---|----------------------|
| 1. Wings with some dark clouds.....   | <i>faceta</i> Navas. |
| Wings not clouded.....  | 2.                   |
| 2. Second joint of the antennæ dark, a dark median spot on face<br>below antennæ.....   | <i>azygota</i> .     |
| Second joint of antennæ pale.....   | 3.                   |
| 3. Venation partly dark, gradates dark.....   | <i>ilota</i> .       |
| Venation pale, gradates pale.....   | 4.                   |
| 4. Gradates divergent; inner series at upper end very close to the<br>radial sector.....  | <i>tagalica</i> .    |
| Gradates subparallel.....   | 5.                   |
| 5. Inner gradates few (3 or 4), each much more than its length from<br>the next one; divisory veinlet ends beyond the cross-vein, | <i>isolata</i> .     |
| Inner gradates (6 or 7) scarcely their length apart; divisory<br>veinlet ends before the cross-vein.....                          | <i>morota</i> .      |

HEMEROBIIDÆ.

*Symphorobius intervenalis* n. sp.

Yellowish, head without definite spots except one each side on vertex near the eyes; antennæ pale, with three or four dark segments about one-third way out; palpi brown. Pronotum brown, thorax with lobes at base of wings dark; abdomen brownish; legs pale. Wings yellowish hyaline, with pale venation; the forkings of veins, costals at base, and some anal veins dark brown, the four gradates dark and bordered with dark brown, the two posterior disjointed from the two anterior by more than their length; a large dark brown spot in the subcostal area between subcosta and radius near base of wings; behind it the cubital cross-vein is heavily dark, and the median and radial cross-veins near base are also dark. The costal area is quite broad, about four times as broad as the subcostal area. In the hind wings the stigma at tip and some of the outer forkings are dark; the entire margin of both wings with dots between veins. Expanse 11 mm.

From Cali, Colombia, 500 feet (Parish).

*Symphorobius modestus* var. *connexus* n. var.

This is similar to the typical form, with the same markings more heavily developed; the four dark spots across the face are connected into a streak each side; the spots on upper and lower clypeus are

connected; the front tibiæ are plainly banded near base and at tip; the head and thorax with pale median stripe; the wings very heavily marked with dark on plan of *S. modestus*, but the wings are about one-fourth longer than in that species, making the cells more elongate; the four outer gradates in pairs. Expanse 14 mm.

From Chosica, Peru, 2,800 feet, 9 June (Parish). I have received *S. modestus* from Matucana, Peru (Parish Coll.).

#### TRICHOPTERA.

##### *Æcetina parishii* n. sp.

Yellowish, with yellow and gray hair; palpi densely gray-haired; antennæ with tips of joints plainly blackish. Wings yellowish gray, darker at tip, black along the outer margin, but here interrupted three times with pale, a tuft of black hair on anal margin toward base, surface with about ten black spots or marks; two near base, one above the tuft on anal margin, one on fork of radial sector, two or three at anastomosis, one beyond, one at end of radius, one at end of subcosta and one near areculus. Hind wings with gray fringe, much longer than width of the wings. In fore wings the discal cell is nearly as long as its pedicel, strongly convex above, fork 1 twice as long as its pedicel; both wings acute at tips. Expanse 12 mm.

From Mallali and Bartica, British Guiana (Parish).

##### *Macronema fragilis* n. sp.

Face yellowish, with whitish hair; antennæ pale, faintly marked at tips of the joints; vertex brown; thoracic notum brown, abdomen pale on base, dark at tip; legs pale yellowish, hind tarsi darker; fore wings a nearly uniform brown, veins darker, an elongate pale spot over stigmal area, broader on basal part, reaching to discal cell, apical part usually containing a dark spot, beyond this and half way to tip is a yellowish white spot extending from costa to fork 2, in base of second apical cell, just beyond discal cell, is a pale spot; hind wings gray, fringe black. In structure extremely similar to *M. parvum*, and venation practically the same. Expanse 14 mm.

From Bartica, British Guiana, December (Parish).

##### *Macronema picteli* n. sp. Pl. XXVIII, fig. 9.

Similar to *M. lineatum* and *M. argentilineatum*, and probably the species referred to by Uhmer (Selys, Trich. pt. 2, p. 69) under *M. argentilineatum* from British Guiana in Leyden Museum. It differs from *M. lineatum* in small eyes, and longer, more pointed wings, and the apical marks are a little different. It differs from *M. argentilineatum*, in having fork 1 to hind wings, and in the position of the

costal cross-vein in fore wings, and the apical marks of fore wings. The wings are long, dark brown; there is a transverse band of white in stigmal region, a crescentic white mark over tip of wing, and pale spots on outer margin in the cells. Between the apical and stigmal marks is a large patch of golden hair, which when rubbed shows hyaline streaks in the bases of several apical cells. Expanse 26 mm.

From Mallali, British Guiana, March (Parish).

*Phylloicus brevior* n. sp. Pl. XXVIII, figs. 2, 4.

Body yellowish, with yellow hairs; anterior part of the thorax blackish, and tip of abdomen dark; antennæ black-haired, and sometimes a black spot over base of each antenna; a row of black hairs each side of face under the antennæ; legs pale, most of fore and mid tarsi, all of hind tarsi and part of tibia black, three spurs on hind tibia, four on mid tibia. Wings nearly evenly dark reddish brown, darker on costal area and on apex; hind wings also dark, more blackish. Fore wings with venation much like that of *P. abdominalis*—that is, the first fork extends one-half way back on discal cell; in the hind wings, however, the apical forks are longer, and there is no closed median cell; the male genitalia are exposed. Expanse 19 mm.

From Bartica, British Guiana, December (Parish).

#### EXPLANATION OF PLATE XXVIII.

- Fig. 1.—*Neoperla bolivari*, ventral plate.  
 Fig. 2.—*Phylloicus brevior*, genitalia of male.  
 Fig. 3.—*Isoperla texana*, ventral plate.  
 Fig. 4.—*Phylloicus brevior*, tip of hind wing.  
 Fig. 5.—*Perla xenocia*, side and dorsal view ♂ genitalia.  
 Fig. 6.—*Acratoleon flavum*, tarsus I.  
 Fig. 7.—*Callibaetis semicostata*, elasper.  
 Fig. 8.—*Leptophlebia assimilis*, elasper and last dorsal segment.  
 Fig. 9.—*Macronema picteti*, tip of fore wing.  
 Fig. 10.—*Neoperla plutonis*, ventral plate.  
 Fig. 11.—*Ephemerella vernalis*, clasper.  
 Fig. 12.—*Perla xenocia*, ventral plate.  
 Fig. 13.—*Hexagenia callincura*, part of wing.  
 Fig. 14.—*Habrophlebia jocosa*, elasper.  
 Fig. 15.—*Cæcilius posticus*, fore wing.  
 Fig. 16.—*Perla georgiana*, ventral plate.  
 Fig. 17.—*Perlodes slossonæ*, ventral plate.  
 Fig. 18.—*Psocus stigmatialis*, fore wing.  
 Fig. 19.—*Perlodes tibialis*, ventral plate.  
 Fig. 20.—*Periclystus*, anal area fore wing.  
 Fig. 21.—*Indoleon*, anal area fore wing.  
 Fig. 22.—*Glucoleon*, anal area fore wing.  
 Fig. 23.—*Distoleon*, anal area fore wing.  
 Fig. 24.—*Myrmecleon*, anal area fore wing.  
 Fig. 25.—*Paraglenurus*, tarsus I.  
 Fig. 26.—*Perlodes signata* Hagen, venter.